CRITICAL SUCCESS FACTORS FOR THE IMPLEMENTATION OF PROBLEM SOLVING PRINCIPLES OF LEAN IN MALAYSIAN AUTOMOTIVE INDUSTRY

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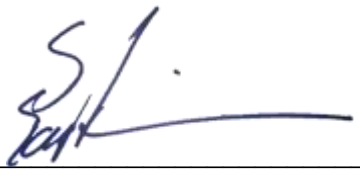

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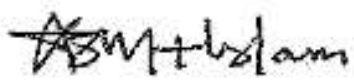

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ABSTRAK

“Lean” telah menjadi sistem pengurusan yang paling popular kerana ia memberi manfaat yang luar biasa dengan cara lebih mudah. Walaupun terdapat banyak literatur mengenai “Lean”, kajian dalam butir-butir penyelesaian masalah yang lebih mendalam dan yang lebih spesifik adalah terhad. Kajian ini bertujuan untuk meneroka unsur-unsur asas prinsip penyelesaian masalah “Lean” dengan menekankan kepentingan mereka untuk mendapatkan lebih banyak keputusan yang boleh dipercayai. Analisis bijak elemen ini ditambah pendekatan kepada metodologi. Selepas menyusun dan menggred 36 faktor-faktor kejayaan, kajian kes telah dijalankan untuk menentukan faktor oleh “Focus Group” 16 ahli “lean” sigma dalam industri Automotif Malaysia. Kaedah percubaan membuat keputusan dan makmal digunakan untuk membandingkan kesan hubungan untuk mengetahui faktor-faktor kejayaan kritikal. Penggunaan kaedah ini untuk kedua-dua keseluruhan dan elemen analisis telah memberikan pandangan yang penting mengenai 17 faktor yang kritikal. Secara ringkas, penulis menafsirkan hasil: apabila terdapat keperluan yang menarik untuk membina budaya penyelesaian masalah tanpa “lean” dalam organisasi, pengurusan atasan perlu menghubungkan cabang prestasi dan akauntabiliti pekerja ke perniagaan strategi; dan mewujudkan kesedaran yang berkualiti dan menguruskan peningkatan dan pembelajaran yang berterusan dengan terperinci merancang dengan betul dengan memberi kuasa dan memotivasi pemilik proses pengeluaran dan jabatan lain termasuk pembekal untuk memahami proses itu, berkomunikasi dengan berkesan dan bekerja sebagai satu pasukan yang disediakan latihan yang betul untuk pengetahuan dan pemikiran baru untuk menggunakan satu set yang lengkap dengan prinsip dan alat. Akhir kata, satu rangka kerja konsep faktor kejayaan kritikal telah dibina mengikut persatuan dengan unsur-unsur prinsip tertentu. Bagi pengamal industri tanpa “Lean”, keputusan ini diikuti dengan perbincangan yang sukar dan bijak akan membimbing untuk menubuhkan prinsip penyelesaian masalah dengan bersandar secara berkesan. Kajian ini juga mengarahkan untuk meneroka cara untuk mewujudkan prinsip-prinsip lain juga. Penulis menganggap bahawa kajian ini boleh mengambil pelaksanaan “Lean” ke peringkat kejayaan seterusnya.

ABSTRACT

Lean has become the most popular management system as it provides tremendous benefits in an easier way. Although there are abundant literatures on lean, study in deeper details which is specific to problem solving of lean is limited. This study is intended to explore standard elements of principles of problem solving in lean with emphasize on their importance to get more reliable results. This element wise analysis is an added approach to the methodology. After compiling and grading 36 success factors, a case study has been conducted to rank the factors by a focus group of 16 lean sigma experts in a Malaysian Automotive industry. Then Decision Making Trial and Laboratory method is used to compare pair wise impact relations to find out critical success factors. Applying this method for both overall and element wise analysis has provided important insights about 17 critical factors. In short, the author interprets the results that when there is a compelling need to build a lean problem solving culture in an organization, top management needs to link metrics of performance and accountability of employees to business strategy; and create quality awareness and manage continuous improvement and learning with detailed plan properly by empowering and motivating process owners in production and other departments including suppliers to understand the process, communicate effectively and work as a team provided right kind of training for new knowledge and mindset to apply the full set of principles and tools. Finally, a conceptual framework of critical success factors has been built as per association with specific elements of principles. For the industrial practitioners of lean, these results along with thoughtful discussions will guide to establish problem solving principles of lean effectively. This study also directs to explore ways to establish other principles as well. The author assumes that this research may take complete lean implementation to the next level of success.

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α	Threshold value
λ	Normalizing factor

LIST OF ABBREVIATIONS

SF	Success factor
CSF	Critical Success factor
PSP	Problem Solving Principle
LP	Lean Principle
CI	Continuous Improvement
JIT	Just-In-Time
TPS	Toyota Production System
LPS	Lean Production System
TPM	Total Productive Maintenance
MCDM	Multi Criteria Decision Making
AHP	Analytic Hierarchy Process
CVR	Content Validity Ratio
CKI	Cohen's Kappa Index
DEMATEL	Decision Making Trial and Evaluation Laboratory
IDM	Impact Relation Diagram
IRM	Impact Relation Map
MLPI	Malaysian Lean Production Index
MAJAICO	Malaysian-Japan Automotive Cooperation
ATEA	Automotive Technical Expert Assistances
MAI	Malaysian Automotive Institute
HICOM	Heavy Industries Corporation of Malaysia
HA	HICOM Automotive
VPP	Volkswagen Pekan Plant
AMM	Automotive Manufacturers (Malaysia) Sdn. Bhd.
NCV	National Commercial Vehicle
MTB	Malaysian Truck & Bus
DCM	DaimlerChrysler Malaysia
SD	Standard Deviation
R	Respondent
E	Element
F	Factor

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